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EXAMINER

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 09/362,058
Filing Date: July 28, 1999
Appellant(s): IWASAKI, MASANORI

Christopher P. Rauch
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed March 3, 2006 appealing from the Office action mailed July 25, 2005.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,835,133	MORETON et al	11-1998
5,737,084	ISHIHARA et al	4-1998
6,437,824	SUZUKI et al	8-2002
6,177,952	TABATA et al	1-2001

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moreton et al of record (5,835,133) in view of Ishihara et al of record (5,737,084), Kobu et al (JP-60037520), and Suzuki et al (6,437,824).

Moreton et al discloses an optical system for single camera stereo video as shown in Figures 2A, 2B, and 6, and substantially the same three dimensional image capturing apparatus and stereo camera recording/reproducing system (see columns 5-6) as claimed in claims 1, 2, and 5, comprising substantially the same single solid state image sensing device (i.e., 50 of Figure 2A and see column 6, lines 36-62) having a plurality of image capturing regions (i.e., 50a, 50b of Figure 2A), each image capturing region simultaneously captures a different image on the single solid state image sensing device (see column 6, lines 36-62); a plurality of optical systems (see 30a, 30b, 35, 40a, 40b, 45, 110, 210 of Figure 2A) for forming a different image of a subject in each image capturing region, each one of the optical systems corresponding to a different one of the image capturing regions (see column 6, lines 36-62), each optical system having an image side reflection means (i.e., 35 of Figure 2A) located in front of the corresponding image capturing region and directed in an obliquely outward direction; a subject side reflection means

Art Unit: 2621

(i.e., 30a, 30b of Figure 2A) located outward from the image side reflection means and directed in an obliquely inward direction; a lens (i.e., 45 of Figure 2A; 10a, 10b of Figure 1) provided in an optical path between the imaging side reflection means 35 and the single solid state image sensing device 50; wherein the optical systems are used to form, in the corresponding image capturing regions, separate and different images of the subject which are captured from different viewpoints having a distance therebetween (see columns 5-6); and a signal processing means for dividing a video signal from the single solid state image sensing device into video signals representing the different images of the subject captured in the image capturing regions for capturing images of the subject from the different viewpoints (see 50a, 50b of Figure 2A, column 6, lines 36-62, and 70, 72 of Figure 6).

Moreton et al does not particular disclose, though, the followings:

(a) light limiting means providing in an optical path between the imaging side reflection means and the lens, the light limiting means preventing incidence of flux of ambient light other than from rays forming each image of the subject as claimed in claims 1 and 2;

(b) an infrared cut filter provided in an optical path between the lens and the single solid state image sensing device as claimed in claims 1 and 2; and

(c) light shielding means provided normal to the single solid state image sensing device and at least between the single solid state image sensing device and the reflection means so as to prevent optical cross talk between the optical systems as claimed in claims 1 and 2.

Regarding (a), it is noted that Moreton et al does teach the particular use of a diaphragm structure (i.e., light limiting means) as shown in Figure 1 that is used to allow light 5a, 5b to pass through slits 4a, 4b, so that the camera may obtained the desired image rays (see column 1, lines

Art Unit: 2621

43-65). Moreton does not particular teach that the light limiting means is provided in an optical path between the imaging side reflection means and the lens as claimed. However, Ishihara discloses a three dimension shape measuring apparatus as shown in Figures 5 and 8, and teaches the conventional use of light limiting means (i.e., 12 of Figure 5 and see column 8, line 54 to column 9, line 4) provided in an optical path between the imaging side reflection means (i.e., 21 of Figure 5) and the lens (i.e., 23 of Figure 5), the light limiting means thereby preventing incidence of flux of ambient light other than from rays forming each image of the subject. Therefore, it would have been obvious to one of ordinary skill in the art, having the Moreton et al and Ishihara references in front of him/her and the general knowledge of lenses systems and light limiting means within three dimensional image capturings, would have had no difficulty in providing the light limiting means 12 of Ishihara in an optical path between the imaging side reflection means 35 and the lens 45 of Moreton et al thereby preventing incidence of flux of ambient light other than from rays forming each image of the subject for the same well known use of optical structures for three dimensional capturing of the desired image rays and reduction of light rays from the subject purposes as claimed.

Regarding (b), Suzuki et al discloses an image pickup apparatus as shown in Figure 29, and teaches the conventional use of an infrared cut filter 12 of Figure 29 provided an optical path between the lens 10 and solid state image sensing device 13 so as to exclude the infrared frequency component (see column 2, lines 37-46). Therefore, it would have been obvious to one of ordinary skill in the art, having the Moreton et al and Suzuki et al references in front of him/her and the general knowledge of image filtering techniques, would have had no difficulty in providing the infrared cut filter 12 of Suzuki et al between the lens 45 and solid state image

Art Unit: 2621

sensing device 50 of Moreton et al for the same well known prevention of the incident angle of light entering the sensor from becoming greater around the periphery of the sensor purposes as claimed.

Regarding (c), Kobu et al discloses a stereoscopic video device as shown in Figure 7, and teaches the conventional use of a light shielding means (i.e., 32 of Figure 7) provided normal to the single solid state image sensing device (i.e., 31 of Figure 7) and at least between the single solid state image sensing device and the reflection means (i.e., 30 of Figure 7) so as to prevent optical cross talk between the optical systems. Therefore, it would have been obvious to one of ordinary skill in the art, having the Moreton et al and Kobu et al references in front of him/her and the general knowledge of the prevention of optical cross talks between optical systems, would have had no difficulty in providing the light shielding means 32 of Kobu et al normal to the single solid state image sensing device 50a, 50b of Moreton et al and at least between the single solid state image sensing device 50a, 50b and the reflection means 35 of Moreton et al for the same well known shielding of optical images toward certain image capturing regions and prevention of optical cross talk between optical systems purposes as claimed.

3. Claim 6 is rejected under 35 U.S.C.103(a) as being unpatentable over Moreton et al, Ishihara, Kobu et al, and Suzuki et al as applied to claims 1, 2, and 5 in the above paragraph (2), and further in view of Tabata et al of record (6,177,952).

The combination of Moreton et al, Ishihara, Kobu et al, and Suzuki et al discloses substantially the same three dimensional image capturing apparatus and stereo camera recording/reproducing system as above, but does not particularly disclose, though, wherein parallax which is the distance between the viewpoints is one centimeter or greater as claimed in

Art Unit: 2621

claim 6. It is noted that Ishihara does teach the conventional use of diaphragms within the optical path of an imaging sensor (see 12 of Figure 8), and Tabata et al teaches the general stereoscopic imagings involving parallax caused by the images and from stereoscopic imagings (see column 6, lines 25-30, column 20, lines 8-14, and Figures 13A and 13B). And without specific criticality and though silent within Moreton et al, it is submitted that the parallax generated within Moreton et al in view of the teachings of Tabata et al may obviously be one centimeter or greater as claimed. Therefore, it would have been obvious to one of ordinary skill in the art, having the Moreton et al, Ishihara, Kobu et al, Suzuki et al, and Tabata et al references in front of him/her and the general knowledge of three dimensional imagings, would have had no difficulty recognizing that the images of the subject of Moreton et al results in a parallax effect in view of the parallax teachings of Tabata et al and that such parallax within Moreton et al may obviously be one centimeter or greater if such features were not already a part of Moreton et al for the same well known three dimensional image capturing purposes as claimed.

(10) Response to Argument

Regarding the appellant's arguments at pages 4-6 of the Brief filed March 3, 2006 concerning in general that "... Moreton in view of Ishihara fails to disclose or suggest a plurality of optical systems that each have a light-limiting means provided in an optical path between an imaging-side reflection means and a lens. Moreton fails to disclose a light-limiting means and Ishihara fails to even relate to a plurality of optical systems. Appellant's claimed invention includes a plurality of optical systems that each corresponds to an image-capturing region of a single solid-state image sensing device ... Moreton teaches a plurality of optical systems, yet none of its optical systems has a light-limiting means. Further, Moreton teaches using a single

Art Unit: 2621

common lens for all of its optical systems, instead of a lens for each optical system ... the combined references still fail to disclose or suggest Appellant's claimed light-limiting means provided in each of a plurality of optical systems ... Moreton fails to disclose a lens for each optical system, and instead discloses a single common lens for all of its optical systems ...

Ishihara teaches using a light-limiting means prior to a lens, however, Ishihara fails to even relate to a device that includes a plurality of optical systems for different image-capturing regions ...

Moreton teaches away from using a different lens and light-limiting means for each of its optical systems ...", the Examiner respectfully disagrees. It is to be noted again that Moreton et al does teach the particular use of a diaphragm structure, i.e. light limiting means, as shown in Figure 1 that is used to allow light 5a, 5b to pass through slits 4a, 4b, so that the camera may obtain the desired image rays (see column 1, lines 43-65 of Moreton et al). Moreton et al is however silent as to the particular light limiting means being provided in an optical path between the imaging side reflection means and the lens as claimed, but such deficiency is clearly provided by the light limiting means 12 of Figure 5 of Ishihara, which is provided in an optical path between the imaging side reflection means 21 of Ishihara and lens 23 of Ishihara. And the light limiting means of Ishihara may obviously be expanded so as to be provided for the plurality of optical systems within Moreton, thereby providing a light limiting means for each of the optical systems. In other words, since it is well known that a light limiting means can be provided for a single optical system in view of Ishihara, it thereby follows that the light limiting means may obviously be provided for any number/plurality of desired optical systems. In addition, it is submitted again that lens 45 of Moreton et al is nevertheless provided in an optical path between the imaging side reflection means 35 and the solid state image sensing device 50, as claimed.

Regarding the appellant's arguments at pages 6-7 of the Brief filed March 3, 2006 concerning in general that "... Moreton fails to disclose an infrared cut filter and Suzuki fails to even relate to a multi-image capturing device ... Each capturing region is associated with an optical system for forming a different image of a subject in each image capturing region. This is clearly unlike Suzuki, which fails to even relate to a multi-image capturing device. Suzuki relates to an image pickup system that merely captures a single image via a single optical system ... one skilled in the art would not have been motivated to combine Suzuki's infrared cut filter with Moreton's device, because Suzuki fails to relate to a multi-image capturing device ...", the Examiner respectfully disagrees. The particular use of an infrared filter 12 as taught by Suzuki may obviously be provided within the multi-image capturing device of Moreton, specifically between lens 45 of Moreton and solid state sensing device 50 of Moreton, thereby rendering obvious the claimed invention. Though Suzuki may not teach a multi-image capturing device, it does not show non-obviousness to provide the infrared filtering system 12 of Suzuki within the multi-image capturing device of Moreton.

Regarding the appellant's arguments at pages 7-8 of the Brief filed March 3, 2006 concerning in general that "... Appellant respectfully submits that the Examiner has used impermissible hindsight to pick and choose individual elements from no less than four unrelated references in an attempt to arrive at Appellant's claimed invention ...", the Examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. (See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In*

Art Unit: 2621

re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992)). In this case, even if suggestion for combination is not particularly specified in Moreton et al, Ishihara et al, Kobu et al, or Suzuki et al, the question in the test for combining references in a section 103 rejection is not solely relied on what the individual reference expressly teaches. In re McLaughlin, 170 USPQ 209-213:

"It should be too well settled now to require citation or discussion that the test for combining references is not what the individual references themselves suggest but rather what the combination of disclosures taken as a whole would suggest to one of ordinary skill in the art. Any judgement on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning, but so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made and does not include knowledge gleaned only from applicant's disclosure, such a reconstruction is proper".

Therefore, even though Moreton et al, Ishihara et al, Kobu et al, or Suzuki et al taken singularly suggests the combination as claimed, the combination of Moreton et al, Ishihara et al, Kobu et al, and Suzuki et al taken as a whole would have been obvious to one of ordinary skill in the art.

Regarding the appellant's arguments at pages 8-9 of the Brief filed March 3, 2006 concerning claim 6 and in general that Moreton in view of Ishihara, Kobu, Suzuki, and Tabata fail to disclose a light limiting means and infrared cut filter, the Examiner wants to point out that such arguments have been addressed in the above.

(11) Evidence Appendix

The Appellant provides a statement that no evidence have been submitted.


(12) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.


Art Unit: 2621

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,



RICHARD LEE
PRIMARY EXAMINER


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05/10/2006


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